

Bank Led Financial Inclusion and Socio Economic Development: The Case of Indian States

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Abstract

Financial inclusion, of late has assumed a development policy priority in many countries. For a country of continental proportions like India, wherein around 28 per cent of the population suffers from chronic poverty and hunger, the need for reaching out to the 'bottom of the pyramid' becomes even more pronounced. Financial inclusion thus becomes imperative to ensure comprehensive development of a country. To actualize such an objective, banks play a majorly important catalytic role. In India, major (banking) efforts in this regard were initiated around the year 2004 when 'financial inclusion' was made an explicit policy objective and the provision of 'no frill' saving account/s was thrust upon. With this backdrop, the paper seeks to examine the inter-state progress in achieving the objective of 'financial access to all' at two points in time, viz. 2002-03 and 2012-13 (period before and after the banking sector drive, directed towards inclusion). The results indicate absence of any drastic improvement in the computed values of IFIs for the two years under study. The results additionally highlight regional imbalances in the inclusion extent across the states of the country (IFI values ranging from 1 for Chandigarh to as low as 0.00 for Manipur for the year 2002-03). With the exception of North Eastern 'sister states', the level of financial inclusion seems to reflect a movement in tandem with the extent of per capita income and the extent of socio economic development (HDI). Financial inclusion is, therefore an ineludible dimension of socio economic development. To capture this essence, a modified measure of HDI, as an improvement over HDI has been computed to measure the extent of a regions' socio economic development by encompassing in addition to the life expectancy index, education index and GDP index for a country, the index for financial inclusion. Notably, the index of financial inclusion is less than the reported human development levels of all states; hence the value of modified HDI falls below the HDI value for all states.

Keywords: Financial Inclusion, Socio Economic Development, Indian States

Introduction

The term 'financial exclusion' has been broadly defined in the literature as 'social exclusion'. Historically, one of the first definitions of financial exclusion defines it as "those processes that serve to prevent certain social groups and individuals from gaining access to the formal financial system" (Leyshon and Thrift, 1995). Another definition states it as "the inability to access necessary financial services in an appropriate form" (Sinclairs, 2001).

In the Indian context, the issue of financial inclusion was deliberated, along with its other facets by the Rangarajan Committee on Financial Inclusion (RBI, 2008). According to the Committee, ‘the essence of financial inclusion is in trying to ensure that a range of appropriate financial services is available to every individual and enabling them to understand and access those services’. The Committee therefore defines financial inclusion as, ‘the process of ensuring access to financial services and timely and adequate availability of credit where needed by vulnerable groups such as the weaker sections and low income groups at an affordable cost’.

Financial Inclusion is a multidimensional phenomenon and building an inclusive financial system is a complex process. The process of building an inclusive financial system would imply removal of the major forms of finance exclusions from the economy. The literature has identified five major forms of financial exclusion/s – access exclusion, where remoteness or the process of risk management results in exclusion; condition exclusion, when exclusion occurs due to conditions that are inappropriate for some; price exclusion, when unaffordable price of financial products/services causes exclusion; marketing exclusion, when exclusion occurs due to targeted marketing and sales of financial products and self exclusion, that takes place when certain segments, owing to fear of refusal or psychological barriers, exclude themselves from formal financial systems deliberately (Kempson and Whyley, 1999a, Kempson and Whyley 1999b).

A large academic literature has adequately discussed the relationship between financial development and economic growth (Levine 1997). However, there has not been much discussion if financial development implies financial inclusion. Also, only a little is known about the breadth of financial systems across countries, the extent to which households, business units and enterprises use financial services and their relationship with desirable outcomes. Paucity of adequate data seems to be the causative factor for the lack of knowledge in this regard (Honohan 2008). It has been historically observed that even ‘well developed’ financial systems have not succeeded to be ‘all inclusive’ and the ambit of formal financial systems fails to completely span certain segments (particularly the low income groups). The importance of financial inclusion and thus an all inclusive financial system is widely recognized in the policy circle in the recent years and financial inclusion has become a policy priority in many countries (Kempson et. al., 2004). The importance of an all inclusive formal financial system is indispensable; it not only enhances efficiency and welfare of the population at large, but also facilitates effective utilization of productive resources, thereby reducing the cost of capital. In addition, it also improves the management of finance and prevents the growth of informal sources of credit supply (such as moneylenders), which are often found

to be exploitative (Sarma, 2008).

With this backdrop, the paper seeks to compute an index of financial inclusion for 29 states and 3 Union Territories (U.T.s) of India’ (based on data availability), using inputs from the methodology proposed by Sarma, 2008 and 2010. Using the index, the progress of financial inclusion across the countries under study has been ascertained at two different points in time, viz. 2002-3 and 2012-13. Further, the degree of association between financial inclusion and socio economic development has been determined by measuring the coefficient of correlation between IFI and Human Development Index (HDI) for the year 2012-13. The paper then compares the level of socio economic development of the various states and UTs as measured by HDI alone and by the modified index that incorporates, along with other dimensions of human development, financial inclusion also.

The results of the study show that among all the states and union territories considered financial inclusion is the highest in Chandigarh (2002-3 and 2012-13). Further, if financial inclusion is considered in the index of socio economic development (HDI), the ranking of the states and UTs as indicated by HDI changes due to differences in the levels of access to formal financial services

The contribution of the study to the literature on finance and development is two-fold: first, it contributes to the literature on financial inclusion in general. Using the available databases, the relationship between finance and development has been evidenced through the paper. Secondly, the study makes a novel suggestion that besides other indicators of socio – economic development, finance inclusion should also be considered as one of the important inputs to development.

The rest of the paper is organized in the following sections: Section 2 presents the methodological details about the computation of the Index of Financial Inclusion and the Modified Human Development Index, Section 3 presents the Results and Findings and Section 4 concludes.

Methodology

Index of Financial Inclusion (IFI)

Several indicators have and can be used to measure the extent of inclusion. The most commonly used indicator has been the number of bank accounts (per 1000 adults). A few other indicators that find a common usage in measurement of inclusion include; number of bank branches (per million people), number of ATMs (per million people), amount of bank credit and deposit (percentage of GDP), ease and cost of banking transactions etc. The indicators if used individually can provide information that can lead to misleading results. Hence, the need to construct and use a comprehensive measure to examine the extent of inclusion

arises. The index should additionally be such that it seeks to capture information on several dimensions of financial inclusion, preferably in a single number. Thus, a good measure of financial inclusion that serves these purposes should be constructed on the basis of the following criteria:

- i. It should incorporate information on as many aspects of financial inclusion as possible.
- ii. It should be simple and easy to compute.
- iii. It should be macro in nature and thus comparable across countries and regions. (Sarma, 2008)

The proposed index of financial inclusion is constructed to satisfy the above criteria and assume values ranging between 0 and 1; 0 indicating complete financial exclusion and 1 indicating complete financial inclusion.

Indicators of Financial Inclusion

Banking Penetration (BP: Dimension 1)

Banking penetration is seen as an indicator of the size of banked population in an economy. As a proxy to measure size of the banked population, the number of accounts (deposit and credit accounts per 1000 adults) has been used as an indicator.² Ranging between 0 and 1, the dimension would measure 1 if every adult in an economy has a bank account.

Availability of Banking Services (BA: Dimension 2)

The dimension is sought to capture information on the ability of the banking system to be able to reach out to its users. Using the number of bank branches/offices (per 1000 persons) as a proxy for the dimension, demographic availability of banking services and hence financial inclusion has been ascertained. Absence of data availability for the number of Banking Correspondents (BCs), ATMs or the number of banking officials has led to the exclusion of these as indicators for BA.

Usage of Banking Services (BU: Dimension 3)

The dimension of financial inclusion is motivated by the notion of “under banked” or “marginally banked” population (Kempson et al 2004). It observes, “in some apparently very highly banked countries, a number of people with bank accounts are nonetheless making very little use of the services on offer...”. These people are referred to as “under banked” or “marginally banked”. Having merely a bank account thus, does not ensure inclusiveness of the system. Hence, in order to incorporate usage as an indicator of inclusiveness, volume of outstanding credit and deposit as a percentage of state GDP (at constant prices) has been used as a proxy for it.

IFI: Formula and Computations

Judging an inclusive financial system from several dimensions, a multi dimensional approach, similar to the

one adopted by UNDP for computation of IFI has been adopted. The methodology is an adaption from ‘Index of Financial Inclusion’ and ‘Index of Financial Inclusion – A measure of financial sector inclusiveness’ by Mandira Sarma (2008 and 2010 respectively). The index is computed by first calculating a dimension index for each dimension of financial inclusion. The dimension index for the *i*th dimension, d_i is computed by the following formula:

$$d_i = \frac{A_i - m_i}{M_i - m_i} \quad (1)$$

Where, A_i = Actual value of the dimension I ; m_i = minimum value of the dimension I ; M_i = maximum value of the dimension i

Choice of minimum and maximum values: Minimum value (m_i) is taken as the empirically observed minimum for each dimension for each year

Maximum value (M_i) is taken as 94th percentile, as the empirically observed value may be an outlier and distort completely the scale of the index. If for a state the dimension value is greater than the upper limit, it is set as equal to it. Thus, by setting the upper limit at 94th percentile, the limitation of comparisons against excessively high benchmarks and outliers is removed.³

Formula (1) ensures that $0 \leq d_i \leq 1$. Hence, higher achievement of a region in dimension i is represented by higher value of d_i .

In then-dimensional space, the point $O=(0,0,0,...,0)$ represents the point of worst actualization of dimension achievements while the point $I=(1,1,1,...,1)$ represents maximum achievement in all dimensions. The index of financial inclusion, IFI $_i$ for the *i*th state/union territory is then measured by the normalized inverse Euclidean distance of the point D_i from the ideal point I . the exact formula appears as follows:

$$IFI_i = 1 - ((1-d_1)^2 + (1-d_2)^2 + \dots + (1-d_n)^2/n)^{1/2} \quad (2)$$

In formula(2), the numerator of the second component is the Euclidean distance D_i from the ideal point I , normalizing I by $(n)^{1/2}$ and subtracting it from 1, gives the inverse normalized distance. The normalization is done in order to ensure that the index values lie between 0 and 1.⁴

Apart from the dimensions under consideration, "Affordability", "Timeliness", "Ease" and "Cost" are other dimensions connoting important aspects of financial inclusion (RBI, 2008). However, data for measuring these dimensions are not adequately available. Therefore, these dimensions have not been incorporated in the current index.

Human Development Index and Modified Human Development Index

Human development index is a composite measure of three

dimensions of human development, viz. life expectancy, adult literacy & enrolment at the primary, secondary and tertiary levels, and the GDP index (UNDP's Human Development Report, 2013). The three pillars on the basis of which HDI is calculated for each country is calculated are as follows:⁵

Dimensions: Long and healthy life, Knowledge, A decent standard of living

Indicators: Life expectancy at birth (Life Expectancy Index), Mean schooling years and Expected years of schooling (Education Index) GNI per capita (GNI Index)

HDI: HDI is the geometric mean of the three dimension indices

$HDI = (\text{Life Expectancy Index}^{1/3} \cdot \text{Education Index}^{1/3} \cdot \text{Income Index}^{1/3}) \dots \dots \dots (3)$

Modified HDI: Modified HDI has been computed by incorporating in the three dimensions of human development, an additional dimension for financial inclusion (IFI) computed in the earlier section of the paper. The modified HDI for the year 2012 has been computed using the following formula:

Modified HDI = $(\text{Life Expectancy Index}^{1/4} \cdot \text{Education Index}^{1/4} \cdot \text{Income Index}^{1/4} \cdot \text{IFI}^{1/4}) \dots \dots \dots (4)$

Results and Discussions

Inter time IFI comparison

Table 1 presents IFI values computed for 29 states and 3 union territories (constrained by data availability for each of the two years under study). As evident from the table, different regions of the country record different levels of inclusion. Among 32 regions under study, IFI value ranges from a low of 0.00 for Manipur to 1.00 for Chandigarh for 2002-3 and 2012-13. While Manipur and Nagaland recorded the lowest levels of inclusion, Chandigarh, Delhi and Goa were noted to be top rankers. Depending on the computed value of IFI, states are placed in one of the following three categories:

i. $0.5 < \text{IFI} < 1$ - high financial inclusion

ii. $0.3 < \text{IFI} < 0.5$ - medium financial inclusion

iii. $0.0 < \text{IFI} < 0.3$ - low financial inclusion

(Sarma, 2008)

High IFI States/Union Territories: The number of counties reporting a 'high' level of inclusion increased from 5 in the year 2002-03 to 7 in 2012-13. Regions that consistently recorded high values of financial inclusion for the two years under study include Chandigarh, Delhi, Goa, Kerala and Punjab. Most states (Delhi, Goa, and Chandigarh) in the category are the ones that belong to the 'high-per capita income' group. Largely, the set is composed of regions that evidence a high or medium level of per capita income. This clarifies a tandem movement between income levels of the states and the extent of financial inclusion

Medium IFI States/Union Territories- The states of Andhra Pradesh, Andaman and Nicobar Island, Gujarat (2002-03), Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka (2002-3), Maharashtra, Puducherry, Sikkim, Tamil Nadu and Uttarakhand represent the set representing a medium level of inclusion. While Karnataka evidenced a graduation to higher inclusion level in the subsequent year; the state of Gujarat witnessed diminution from a medium IFI grade to low in the year 2012-13. To a large extent, regions in this category of IFI are represented by the ones belonging to the high, upper and lower middle per capita income group.

Low IFI States/Union Territories- From among the regions under study, a major number (about 50 per cent) of them belong to this category. The number of states/Union territories, however falling in the category witnessed an increase from 15 in 2002-3 to 16 in 2012-13, thereby reflecting progress in the context of financial inclusion, however at a very slow pace throughout the years. The list is dominated by middle and low income states/regions. The states falling in this category are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Rajasthan, Tripura, Uttar Pradesh and West Bengal. Observably synchronous movement between the regions' per capita income and inclusion levels was evidenced through the study.

Table 1: State/Union Territory Wise Index of Financial Inclusion (IFI)

Sr. No:	State/UT	IFI		Rank	
		2002-3	2012-13	2002-03	2012-13
1.	Andaman & Nicobar Islands	0.31	0.30	15	16
2.	Andhra Pradesh	0.31	0.41	16	11
3.	Arunachal Pradesh	0.19	0.17	25	26
4.	Assam	0.12	0.12	30	29
5.	Bihar	0.14	0.08	29	30
6.	Chandigarh	1.00	1.00	1	1
7.	Chhattisgarh	0.14	0.16	28	28

8.	Delhi	0.81	0.91	3	2
9.	Goa	0.88	0.59	2	3
10.	Gujarat	0.32	0.28	14	17
11.	Haryana	0.30	0.38	17	13
12.	Himachal Pradesh	0.47	0.43	7	9
13.	Jammu & Kashmir	0.39	0.34	12	14
14.	Jharkhand	0.22	0.17	20	27
15.	Karnataka	0.45	0.51	8	6
16.	Kerala	0.52	0.51	5	5
17.	Madhya Pradesh	0.20	0.17	24	25
18.	Maharashtra	0.43	0.49	9	7
19.	Manipur	0.00	0.01	32	32
20.	Meghalaya	0.25	0.18	19	23
21.	Mizoram	0.18	0.20	26	21
22.	Nagaland	0.03	0.05	31	31
23.	Odisha	0.21	0.24	22	19
24.	Puducherry	0.39	0.43	11	10
25.	Punjab	0.56	0.55	4	4
26.	Rajasthan	0.21	0.18	23	22
27.	Sikkim	0.34	0.32	13	15
28.	Tamil Nadu	0.42	0.47	10	8
29.	Tripura	0.17	0.18	27	24
30.	Uttar Pradesh	0.21	0.20	21	20
31.	Uttarakhand	0.49	0.39	6	12
32.	West Bengal	0.26	0.25	18	18

IFI: Authors' own calculations

Data for dimensions of IFI extracted from Banking and Statistical Returns of Scheduled Commercial Banks in India

Table 2: Descriptive Statistics of IFI for Select States/Union Territories/ Regions

Descriptive	2002-03	2012-13
Min	0	0.01
Max	1	1
Mean	0.34	0.34
Standard Deviation	0.2288	0.2235
Coefficient of variation	0.671	0.669
High IFI states/regions/union territories	5	6
Medium IFI states/regions/union territories	12	10
Low IFI states/regions/union territories	15	16
Proportion of High IFI states/regions/union territories	15.63	18.75
Proportion of Medium IFI states/regions/union territories	37.5	31.25
Proportion of Low IFI states/regions/union territories	46.875	50

Authors' own calculations

Table 2 presents descriptive statistics of computed IFI values for 32 states/union territories/regions for 2002-03 and 2012-13. The computations indicate absence of any up gradation in the extent of financial inclusion (no

improvement in the mean IFI value and a less than minimal advancement in the minimum IFI value). Also, there seems to be another mammoth problem of regional inclusion inequality (Coefficient of variation about 0.67 in both the

years) confronted by the states of the country. Although the initiatives for financial inclusion have started coming from financial regulators, governments and the banking industry, the spread and reach of these are still inadequate; and the results suggest incompetence of the government and/or banks so far in providing access to the financial necessities.

Table 3 presents a regional assessment of IFI values. It seems evident that Northern region of the country encompasses states with the highest IFI values, including

states/union territories like Chandigarh (IFI: 1 for 2002-03 and 2012-13), Delhi (IFI: 0.81 for 2002-03 and 0.91 for 2012-13) and Punjab (0.56 for 2002-03 and 0.55 for 2012-13). While the inclusion level in Southern and Western regions of the country appears to be moderately good, the inclusion status of Central and Eastern regions was found to be poor. Additionally, the condition of inclusion in the seven sister states of North East India was observed to be miserable, thereby depicting a great inclusion gap across the country's states.

Table 3: Region Wise Assessment of the Level of Financial Inclusion

Level of Financial Inclusion		
REGION / STATE / UNION TERRITORY	2002-03	2012-13
NORTHERN REGION		
Haryana	Medium	Medium
Himachal Pradesh	Medium	Medium
Jammu & Kashmir	Medium	Medium
Punjab	High	High
Rajasthan	Low	Low
Chandigarh	High	High
Delhi	High	High
NORTH-EASTERN REGION		
Arunachal Pradesh	Low	Low
Assam	Low	Low
Manipur	Low	Low
Meghalaya	Low	Low
Mizoram	Low	Low
Nagaland	Low	Low
Tripura	Low	Low
EASTERN REGION		
Bihar	Low	Low
Jharkhand	Low	Low
Odisha	Low	Low
Sikkim	Medium	Medium
West Bengal	Low	Low
CENTRAL REGION		
Chhattisgarh	Low	Low
Madhya Pradesh	Low	Low
Uttar Pradesh	Low	Low
Uttarakhand	Medium	Medium
WESTERN REGION		
Goa	High	High
Gujarat	Medium	Low
Maharashtra	Medium	Medium
SOUTHERN REGION		
Andhra Pradesh	Medium	Medium
Karnataka	Medium	High
Kerala	High	High
Tamil Nadu	Medium	Medium
Puducherry	Medium	Medium

Authors' own calculations

Relationship between Financial Inclusion and Socio-Economic Development

With the exception of the North Eastern sisterly states, financial inclusion and the extent of socio economic development, as measured by the Human Development Index seem to move in the same direction. For instance, for the year 2012-13, Kerala, Karnataka, Punjab, Haryana, Himachal Pradesh and Tamil Nadu represent the states evidencing both, moderate to high levels of financial inclusion and human development. The North Eastern states on the other hand represent the lot witnessing although high levels of human development, yet exhibiting a poor stance at the inclusion front. The computed value of Pearson's correlation for the year 2012-13 is noted to be 0.471 (significant at 1 per cent level of significance), which is moderately high, thereby connoting a fairly medium to

strong association between the variable of socio economic development and financial inclusion (for aggregate India). On the other hand, if the North Eastern states are excluded from the computation, the value of Pearson's Coefficient of Correlation is noted to be significantly high (0.935), thereby reflecting a tandem movement between the extent of inclusion and socio economic development. The results reflect upon the inability of the North Eastern states (in particular) in reaching out to the poor and vulnerable. It also becomes an imperative observation that the aim of socio economic and/or human development cannot be actualized without ensuring availability of financial services to the excluded and that too at an affordable cost. Financial inclusion should therefore be viewed as an important policy objective for encouraging socio economic development of the country and should hence be considered as an additional dimension for it.

Table 4: Correlation between IFI and HDI 2012-13 (27 Indian States)

		IFI2004	HDI2004
IFI 2012-13	Pearson Correlation	1	0.471**
	Sig. (2-tailed)		.000
	N	27	27
HDI 2012-13	Pearson Correlation	.471**	1
	Sig. (2-tailed)	.000	
	N	27	27

** . Correlation is significant at the 0.01 level (2-tailed)

Table 5: Correlation between IFI and HDI 2012-13 (20 Indian States: With the exception of North Eastern States)

		IFI2004	HDI2004
IFI 2012-13	Pearson Correlation	1	0.935**
	Sig. (2-tailed)		.000
	N	20	20
HDI 2012-13	Pearson Correlation	.935**	1
	Sig. (2-tailed)	.000	
	N	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

Modified HDI: An Illustration

Table 6: Modified HDI for the year 2012-13

State	HDI	Modified HDI	Ranking based on HDI	Ranking based on Modified HDI
Andhra Pradesh	0.49	0.46	19	11
Arunachal Pradesh	0.53	0.40	13	16
Assam	0.47	0.34	20	24
Bihar	0.45	0.29	26	26
Chhattisgarh	0.46	0.35	24	23
Gujarat	0.51	0.44	15	13
Haryana	0.55	0.50	8	7
Himachal Pradesh	0.56	0.52	5	5
Jammu & Kashmir	0.53	0.47	14	9
Karnataka	0.51	0.51	18	6
Kerala	0.63	0.60	1	1
Madhya Pradesh	0.45	0.36	25	22
Maharashtra	0.55	0.53	7	3
Meghalaya	0.54	0.41	10	15

Mizoram	0.58	0.44	3	12
Nagaland	0.61	0.33	2	25
Odisha	0.44	0.38	27	18
Punjab	0.57	0.57	4	2
Rajasthan	0.47	0.37	22	20
Sikkim	0.53	0.47	11	10
Tamil Nadu	0.54	0.52	9	4
Tripura	0.51	0.39	16	17
Uttar Pradesh	0.47	0.38	23	19
Uttarakhand	0.53	0.49	12	8
West Bengal	0.51	0.43	17	14

Source (HDI): India Development Report (2012-13)
Modified HDI: Authors' own calculations

As observed earlier, HDI is seen as a measure of economic development through development of human beings. Measured as a geometric average of life expectancy index, education index and GDP index for a country, it seeks to capture essence of human development through a state's achievement in providing a long and healthy life to its residents, education level of the residents and its contribution to the domestic product. It however fails to encompass the index seeking to measure the progress of a region in being able to reach to the 'bottom of the pyramid' by ensuring availability of finance to the unbanked population. To capture this dimension, an attempt has been made to incorporate the index of financial inclusion (IFI) as measured in the earlier section of the paper (for 2012). A similar attempt was made by Rashmi Umesh Arora, in her paper 'Measuring Financial Access (2010)', by incorporating the index for financial access in HDI for the year 2009.

The ranking of states for HDI and modified HDI is shown in Table 6. The results reveal that Kerala leads the list, in terms of both HDI and its financial inclusion incorporated measure (HDI). Whilst some states (16) revealed rank improvements from HDI to modified HDI, there were others evidencing rank stagnation (03) or even deterioration (08). Major rank improvement was observed for Karnataka (18 to 06), followed by Odisha (27 to 19) and Andhra Pradesh (19 to 11) reflecting the states' competence in extending finance to the unbanked masses and thereby improving the status of socio-economic well being. On the other hand, Nagaland (02 to 25), Manipur (06 to 27) and Mizoram (03 to 12) were among the states showing a downgrade in human development ranks owing to the incorporation of financial inclusion in the index. Ranking of Kerala, Sikkim and Jharkhand however did not reflect any rank change. Notably, the index of financial inclusion is less than the reported human development levels of all states; hence the value of modified HDI falls below the HDI value for all states. Providing access to finance and financial services to the poor and vulnerable is an important foot forward towards actualizing the objective of social development and human welfare;

financial inclusion should therefore be viewed as an additional measure of economic/ socio-economic development.

Conclusions and Implications

The paper presents an illustrative example of determination and computation of IFI, over time and across regions. The index computed for 2002-03 and 2012-13, indicates that different regions of the country are at different levels of financial inclusion. The computations indicate no drastic improvement in the extent of financial inclusion in the country over a span of 10 years. The index for human development (HDI) and the income level of the states/union territories seem to show a unidirectional movement with IFI (with the exception of North Eastern states in the context of HDI). The regions experiencing a high level of inclusion are observed to be the ones characterized by high income and high level of socio economic development, the reverse is also true for the regions with a low level of financial inclusion (with only a few exceptions). Modified HDI, as an improvement over HDI seeks to measure the level of socio economic development by encompassing in addition to, the life expectancy index, education index and GDP index for a country, the index for financial inclusion.

As evidenced through the paper, financial inclusion and development are closely associated. Financial inclusion should therefore be viewed as a policy priority by, policy makers, policy providers, banking and financial institutions. Policy makers can augment the pace of development by ensuring financial access to all through financial inclusion and thus supplement the policies on employment, security and education. Financial inclusion is inevitably a road that needs to be transversed to actualize the country's objectives of development and prosperity.

To turn into reality, the aim of financial inclusion, technology can be a great enabler. However, providing 'technology with a human touch' is envisaged to extend financial services to the unbanked masses. In the banks' business model/s sufficient provisions should be built in to pay heed to customer grievances. Dr. Tanmejaya Sinha,

Chairman, CII Taskforce on Financial Inclusion and Chairman (Asia Pacific), The Boston Consulting Group, stating “The future lies with those who see the poor as their customers, as business for the poor is more viable than the rich”, argued that financial illiteracy is another stumbling block in furthering financial inclusion. Therefore there arises a need to spread financial literacy. There is also a need to increase wireless and broadband connectivity in rural areas to support rural banking. Business correspondents should be identified and properly trained to spread awareness in their respective areas. Focus should be on 'area specific models' rather than a one size fits all approach. The task of financial inclusion, however does not end by cajoling people to open a bank account, but involves actuating them to make full use of the services. This in turn will improve national development and productivity by ensuring full utilization of the economic potential by people in their productive years and then reaping its benefits when they retire.

Thus, financial inclusion is one of the national development policies in this broad mix. Financial inclusion, in harmony with other economic objectives of the country can make a unique contribution to economic and national development.

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Endnotes:

- 29 states and 3 union territories are selected on the basis of data availability on all dimensions for 2002-03 and 2012-13
- There may be persons having more than 1 bank account co-existing with others who may have none. Therefore no: of bank accounts per capita is likely actually provide an overestimation of the banked population (Sarma, 2010).
- The choice of 94th percentile may appear to be arbitrary. The choice is driven by the total observations for which data are available. In the present study, given the size of sample, 94th percentile appears to be appropriate. If more observations are available a higher percentile (98th and 99th percentile) may also be used (Sarma, 2010).
- Inverse Euclidean distance is considered to ensure higher value of IFI corresponds to higher financial inclusion.
- For details, see technical note in UNDP's Human Development Report 2014 available at <www.undp.org>.

Appendix I: Dimension Indices and IFI: 2002-03

State/ Union Territory/ Region	Index of Bank Penetration	Index of Bank Availability	Index of Usage of Banking Services	IFI 2002-03
Andaman & Nicobar Islands	0.45	0.28	0.22	0.31
Andhra Pradesh	0.32	0.30	0.31	0.31
Arunachal Pradesh	0.25	0.15	0.15	0.19
Assam	0.12	0.13	0.10	0.12
Bihar	0.09	0.09	0.23	0.14
Chandigarh	1.00	1.00	1.00	1.00
Chhattisgarh	0.15	0.10	0.17	0.14
Delhi	0.67	0.94	1.00	0.81
Goa	1.00	1.00	0.80	0.88
Gujarat	0.34	0.28	0.34	0.32
Haryana	0.36	0.33	0.21	0.30
Himachal Pradesh	0.82	0.45	0.29	0.47
Jammu & Kashmir	0.43	0.30	0.44	0.39
Jharkhand	0.19	0.17	0.31	0.22
Karnataka	0.51	0.37	0.49	0.45
Kerala	0.64	0.49	0.46	0.52
Madhya Pradesh	0.21	0.14	0.27	0.20
Maharashtra	0.29	0.34	0.88	0.43
Manipur	0.00	0.00	0.00	0.00
Meghalaya	0.39	0.14	0.23	0.25
Mizoram	0.47	0.04	0.10	0.18
Nagaland	0.02	0.02	0.06	0.03
Orissa	0.24	0.16	0.23	0.21
Pondicherry	0.46	0.53	0.23	0.39
Punjab	0.64	0.55	0.48	0.56
Rajasthan	0.23	0.16	0.23	0.21
Sikkim	0.47	0.15	0.46	0.34
Tamil Nadu	0.39	0.38	0.50	0.42
Tripura	0.20	0.21	0.10	0.17
Uttar Pradesh	0.14	0.21	0.28	0.21
Uttaranchal	0.58	0.40	0.51	0.49
West Bengal	0.20	0.27	0.32	0.26

Dimension Indices: Authors' own calculations

Data for dimensions of IFI extracted from Banking Statistical Returns of Scheduled Commercial Banks 2002-03

Data for population extracted from <http://censusindia.gov.in/>

Appendix II: Dimension Indices and IFI: 2012-13

State/Union Territory/Region	Index of Bank Penetration	Index of Bank Availability	Index of Usage of Banking Services	IFI 2012-13
Andaman & Nicobar Islands	0.431	0.585	0.011	0.299
Andhra Pradesh	0.525	0.395	0.315	0.405
Arunachal Pradesh	0.106	0.213	0.198	0.171
Assam	0.141	0.091	0.133	0.122
Bihar	0.049	0.043	0.156	0.081
Chandigarh	1.000	1.000	1.000	1.000
Chhattisgarh	0.118	0.180	0.180	0.159
Delhi	1.000	0.836	1.000	0.905
Goa	1.000	1.000	0.285	0.587
Gujarat	0.314	0.356	0.185	0.281
Haryana	0.417	0.556	0.226	0.385
Himachal Pradesh	0.508	0.852	0.163	0.433
Jammu & Kashmir	0.332	0.403	0.302	0.344
Jharkhand	0.161	0.184	0.163	0.169
Karnataka	0.500	0.515	0.512	0.509
Kerala	0.642	0.723	0.292	0.515
Madhya Pradesh	0.159	0.174	0.189	0.174
Maharashtra	0.458	0.300	0.894	0.485
Manipur	0.000	0.000	0.028	0.009
Meghalaya	0.098	0.270	0.175	0.178
Mizoram	0.126	0.421	0.085	0.197
Nagaland	0.028	0.129	0.000	0.051
Odisha	0.272	0.261	0.195	0.242
Puducherry	0.734	0.649	0.115	0.429
Punjab	0.573	0.797	0.388	0.554
Rajasthan	0.144	0.221	0.185	0.183
Sikkim	0.314	0.715	0.091	0.322
Tamil Nadu	0.607	0.436	0.393	0.470
Tripura	0.261	0.244	0.043	0.177
Uttar Pradesh	0.218	0.147	0.242	0.201
Uttarakhand	0.424	0.688	0.167	0.388
West Bengal	0.246	0.174	0.345	0.252

Dimension Indices: Authors' own calculations

Data for dimensions of IFI extracted from Banking Statistical Returns of Scheduled Commercial Banks 2012-13

Data for population extracted from <http://censusindia.gov.in/>